



## SEQUENCE LISTING

<110> Yu, Mang  
Fang, Fang

<120> Broad Spectrum Anti-Viral Therapeutics  
And Prophylaxis

<130> 21865-002001/6502

<140> US 10/718,986

<141> 2003-11-21

<150> US 60/428,535

<151> 2002-11-12

<150> US 60/464,217

<151> 2003-04-19

<160> 12

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 58

<212> PRT

<213> Bos taurus

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Phe	Val	Tyr	Gly	Gly	Cys	Arg	Ala	Lys	Arg	Asn	Asn	Phe	Lys	Ser	Ala
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<212> PRT

<213> Homo sapiens

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 Lys Ser

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 Ala Gly

<210> 6  
 <211> 12  
 <212> PRT  
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<210> 7  
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 Lys Lys Lys Asn Pro  
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Ser	Leu	Leu	Ala	Phe	Ala	Glu	Gln	Arg	Ala	Ser	Lys	Lys	Asp	Glu	His
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Ala	Glu	Leu	Ile	Val	Leu	Arg	Arg	Gly	Asp	Tyr	Asp	Ala	Pro	Thr	His
	50					55					60				
Gln	Val	Gln	Trp	Gln	Ala	Gln	Glu	Val	Val	Ala	Gln	Ala	Arg	Leu	Asp
65					70					75					80
Gly	His	Arg	Ser	Met	Asn	Pro	Cys	Pro	Leu	Tyr	Asp	Ala	Gln	Thr	Gly
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Thr	Leu	Phe	Leu	Phe	Phe	Ile	Ala	Ile	Pro	Gly	Gln	Val	Thr	Glu	Gln
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Gln	Gln	Leu	Gln	Thr	Arg	Ala	Asn	Val	Thr	Arg	Leu	Cys	Gln	Val	Thr
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Ala	Ala	Ile	Gly	Pro	Ala	Tyr	Arg	Glu	Trp	Ser	Thr	Phe	Ala	Val	Gly
145					150				155						160
Pro	Gly	His	Cys	Leu	Gln	Leu	Asn	Asp	Arg	Ala	Arg	Ser	Leu	Val	Val
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Pro	Ala	Tyr	Ala	Tyr	Arg	Lys	Leu	His	Pro	Ile	Gln	Arg	Pro	Ile	Pro
			180				185						190		
Ser	Ala	Phe	Cys	Phe	Leu	Ser	His	Asp	His	Gly	Arg	Thr	Trp	Ala	Arg
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Gly	His	Phe	Val	Ala	Gln	Asp	Thr	Leu	Glu	Cys	Gln	Val	Ala	Glu	Val
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Glu	Thr	Gly	Glu	Gln	Arg	Val	Val	Thr	Leu	Asn	Ala	Arg	Ser	His	Leu
225					230					235					240
Arg	Ala	Arg	Val	Gln	Ala	Gln	Ser	Thr	Asn	Asp	Gly	Leu	Asp	Phe	Gln
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Asp	Leu	Gly	Ala	Tyr	Leu	Asn	Pro	Arg	Pro	Pro	Ala	Pro	Glu	Ala	Trp
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Ser	Glu	Pro	Val	Leu	Leu	Ala	Lys	Gly	Ser	Cys	Ala	Tyr	Ser	Asp	Leu
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Gln	Ser	Met	Gly	Thr	Gly	Pro	Asp	Gly	Ser	Pro	Leu	Phe	Gly	Cys	Leu
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Tyr	Glu	Ala	Asn	Asp	Tyr	Glu	Glu	Ile	Val	Phe	Leu	Met	Phe	Thr	Leu
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 35 40 45  
 Thr Pro Glu Ala Val Gln Ile Ala Thr Gly Arg Asn Ala Ala Arg Leu  
 50 55 60  
 Cys Cys Val Ala Ser Arg Asp Ala Gly Leu Ser Trp Gly Ser Ala Arg  
 65 70 75 80

Asp	Leu	Thr	Glu	Glu	Ala	Ile	Gly	Gly	Ala	Val	Gln	Asp	Trp	Ala	Thr	
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Leu	Val	Pro	Ala	Tyr	Thr	Tyr	Arg	Val	Asp	Arg	Leu	Glu	Cys	Phe	Gly	
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His	Gly	Arg	Thr	Trp	Arg	Cys	Gly	Gly	Leu	Val	Pro	Asn	Leu	Arg	Ser	
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Gly	Glu	Cys	Gln	Leu	Ala	Ala	Val	Asp	Gly	Gly	Gln	Ala	Gly	Ser	Phe	
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Leu	Tyr	Cys	Asn	Ala	Arg	Ser	Pro	Leu	Gly	Ser	Arg	Val	Gln	Ala	Leu	
			180				185						190			
Ser	Thr	Asp	Glu	Gly	Thr	Ser	Phe	Leu	Pro	Ala	Glu	Arg	Val	Ala	Ser	
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			210			215					220					
Ala	Pro	Ala	Pro	Asn	Arg	Pro	Arg	Asp	Asp	Ser	Trp	Ser	Val	Gly	Pro	
225				230					235						240	
Arg	Ser	Pro	Leu	Gln	Pro	Pro	Leu	Leu	Gly	Pro	Gly	Val	His	Glu	Pro	
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Pro	Glu	Glu	Ala	Ala	Val	Asp	Pro	Arg	Gly	Gly	Gln	Val	Pro	Gly	Gly	
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Pro	Phe	Ser	Arg	Leu	Gln	Pro	Arg	Gly	Asp	Gly	Pro	Arg	Gln	Pro	Gly	
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Pro	Arg	Pro	Gly	Val	Ser	Gly	Asp	Val	Gly	Ser	Trp	Thr	Leu	Ala	Leu	
			290			295					300					
Pro	Met	Pro	Phe	Ala	Ala	Pro	Pro	Gln	Ser	Pro	Thr	Trp	Leu	Leu	Tyr	
305				310					315						320	
Ser	His	Pro	Val	Gly	Arg	Arg	Ala	Arg	Leu	His	Met	Gly	Ile	Arg	Leu	
			325					330					335			
Ser	Gln	Ser	Pro	Leu	Asp	Pro	Arg	Ser	Trp	Thr	Glu	Pro	Trp	Val	Ile	
			340				345						350			
Tyr	Glu	Gly	Pro	Ser	Gly	Tyr	Ser	Asp	Leu	Ala	Ser	Ile	Gly	Pro	Ala	
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Pro	Glu	Gly	Gly	Leu	Val	Phe	Ala	Cys	Leu	Tyr	Glu	Ser	Gly	Ala	Arg	
			370			375					380					
Thr	Ser	Tyr	Asp	Glu	Ile	Ser	Phe	Cys	Thr	Phe	Ser	Leu	Arg	Glu	Val	
385				390					395						400	
Leu	Glu	Asn	Val	Pro	Ala	Ser	Pro	Lys	Pro	Pro	Asn	Leu	Gly	Asp	Lys	
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 <213> Artificial Sequence

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 <223> Synthetic construct

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<213> Actinomyces viscosus

<220>

<223> nanH gene for sialidase

<400> 11

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ggcgatgtca	tgaccttcaa	catcacccctg	accaacacca	gcggcgaggc	ccactcctac	240
gccccggcct	cgacgaacct	gtccgggaac	gtctccaagt	gccggtggcg	caacgtcccg	300
gccgggacga	ccaagaccga	ctgcaccggc	ctggccaacgc	acacgggtgac	cgccgaggac	360
ctcaaggccg	gtggcttcac	cccgcagatc	gcctacgagg	tcaaggccgt	ggagtacgcc	420
gggaaggccc	tgagcacccc	ggagacgac	aaggggcgca	cgagcccagt	caaggccaac	480
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<213> Actinomyces viscosus

<220>

<223> nanH sialidase

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Gln	Val	Asn	Ala	Pro	Ala	Asp	Gly	Leu	Tyr	Ser	Val	Gly	Asp	Val	Met
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Thr	Phe	Asn	Ile	Thr	Leu	Thr	Asn	Thr	Ser	Gly	Glu	Ala	His	Ser	Tyr
65					70					75					80
Ala	Pro	Ala	Ser	Thr	Asn	Leu	Ser	Gly	Asn	Val	Ser	Lys	Cys	Arg	Trp
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Arg	Asn	Val	Pro	Ala	Gly	Thr	Thr	Lys	Thr	Asp	Cys	Thr	Gly	Leu	Ala
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Thr	His	Thr	Val	Thr	Ala	Glu	Asp	Leu	Lys	Ala	Gly	Gly	Phe	Thr	Pro
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Gln	Ile	Ala	Tyr	Glu	Val	Lys	Ala	Val	Glu	Tyr	Ala	Gly	Lys	Ala	Leu
	130					135					140				
Ser	Thr	Pro	Glu	Thr	Ile	Lys	Gly	Ala	Thr	Ser	Pro	Val	Lys	Ala	Asn
145					150					155					160
Ser	Leu	Arg	Val	Glu	Ser	Ile	Thr	Pro	Ser	Ser	Ser	Gln	Glu	Asn	Tyr
			165					170						175	
Lys	Leu	Gly	Asp	Thr	Val	Ser	Tyr	Thr	Val	Arg	Val	Arg	Ser	Val	Ser
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Asp	Lys	Thr	Ile	Asn	Val	Ala	Ala	Thr	Glu	Ser	Ser	Phe	Asp	Asp	Leu
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Tyr	Asn	Cys	Lys	Pro	Leu	Thr	His	Thr	Ile	Thr	Gln	Ala	Asp	Val	Asp
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			260					265					270		
Val	Gly	Asp	His	Pro	Gln	Ala	Thr	Pro	Ala	Pro	Ala	Pro	Asp	Ala	Ser
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Thr	Glu	Leu	Pro	Ala	Ser	Met	Ser	Gln	Ala	Gln	His	Leu	Ala	Ala	Asn
	290					295					300				
Thr	Ala	Thr	Asp	Asn	Tyr	Arg	Ile	Pro	Ala	Ile	Pro	Pro	Pro	Pro	Met
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Gly	Thr	Cys	Ser	Ser	Pro	Thr	Thr	Ser	Ala	Arg	Arg	Thr	Thr	Ala	Thr
			325					330						335	
Ala	Ala	Ala	Thr	Thr	Pro	Asn	Pro	Asn	His	Ile	Val	Gln	Arg	Arg	Ser
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		355					360					365			
Thr	Glu	Thr	Gly	Lys	Lys	Val	Gly	Tyr	Ser	Asp	Pro	Ser	Tyr	Val	Val
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Asp	His	Gln	Thr	Gly	Thr	Ile	Phe	Asn	Phe	His	Val	Lys	Ser	Tyr	Asp
385					390					395					400
Gln	Gly	Trp	Gly	Gly	Ser	Arg	Gly	Gly	Thr	Asp	Pro	Glu	Asn	Arg	Gly
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Ile	Ile	Gln	Ala	Glu	Val	Ser	Thr	Ser	Thr	Asp	Asn	Gly	Trp	Thr	Trp
			420					425					430		
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		435					440					445			
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His	Ala	Gly	Arg	Leu	Val	Gln	Gln	Tyr	Thr	Ile	Arg	Thr	Ala	Gly	Gly
465					470					475					480
Pro	Val	Gln	Ala	Val	Ser	Val	Tyr	Ser	Asp	Asp	His	Gly	Lys	Thr	Trp
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Gln	Ala	Gly	Thr	Pro	Ile	Gly	Thr	Gly	Met	Asp	Glu	Asn	Lys	Val	Val	
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Gln	Ile	Ile	Arg	Ala	Phe	Pro	Asn	Ala	Ala	Pro	Asp	Asp	Pro	Arg	Ala	
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Lys	Val	Leu	Leu	Leu	Ser	His	Ser	Pro	Asn	Pro	Arg	Pro	Trp	Cys	Arg	
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Asp	Arg	Gly	Thr	Ile	Ser	Met	Ser	Cys	Asp	Asp	Gly	Ala	Ser	Trp	Thr	
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Thr	Ser	Lys	Val	Phe	His	Glu	Pro	Phe	Val	Gly	Tyr	Thr	Thr	Ile	Ala	
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Val	Gln	Ser	Asp	Gly	Ser	Ile	Gly	Leu	Leu	Ser	Glu	Asp	Ala	His	Asn	
625					630					635					640	
Gly	Ala	Asp	Tyr	Gly	Gly	Ile	Trp	Tyr	Arg	Asn	Phe	Thr	Met	Asn	Trp	
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Leu	Gly	Glu	Gln	Cys	Gly	Gln	Lys	Pro	Ala	Glu	Pro	Ser	Pro	Gly	Arg	
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Arg	Arg	Arg	Arg	His	Pro	Gln	Arg	His	Arg	Arg	Arg	Ser	Arg	Pro	Arg	
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Arg	Pro	Arg	Arg	Ala	Leu	Ser	Pro	Arg	Arg	His	Arg	His	His	Pro	Pro	
	690					695					700					
Arg	Pro	Ser	Arg	Ala	Leu	Arg	Pro	Ser	Arg	Ala	Gly	Pro	Gly	Ala	Gly	
705					710					715					720	
Ala	His	Asp	Arg	Ser	Glu	His	Gly	Ala	His	Thr	Gly	Ser	Cys	Ala	Gln	
				725					730					735		
Ser	Ala	Pro	Glu	Gln	Thr	Asp	Gly	Pro	Thr	Ala	Ala	Pro	Ala	Pro	Glu	
			740				745						750			
Thr	Ser	Ser	Ala	Pro	Ala	Ala	Glu	Pro	Thr	Gln	Ala	Pro	Thr	Val	Ala	
		755					760					765				
Pro	Ser	Val	Glu	Pro	Thr	Gln	Ala	Pro	Gly	Ala	Gln	Pro	Ser	Ser	Ala	
	770					775					780					
Pro	Lys	Pro	Gly	Ala	Thr	Gly	Arg	Ala	Pro	Ser	Val	Val	Asn	Pro	Lys	
785					790					795					800	
Ala	Thr	Gly	Ala	Ala	Thr	Glu	Pro	Gly	Thr	Pro	Ser	Ser	Ser	Ala	Ser	
				805					810					815		
Pro	Ala	Pro	Ser	Arg	Asn	Ala	Ala	Pro	Thr	Pro	Lys	Pro	Gly	Met	Glu	
			820					825					830			
Pro	Asp	Glu	Ile	Asp	Arg	Pro	Ser	Asp	Gly	Thr	Met	Ala	Gln	Pro	Thr	
		835					840					845				
Gly	Ala	Pro	Ala	Arg	Arg	Val	Pro	Arg	Arg	Arg	Arg	Arg	Arg	Arg	Pro	
	850					855					860					
Ala	Ala	Gly	Cys	Leu	Ala	Arg	Asp	Gln	Arg	Ala	Ala	Asp	Pro	Gly	Pro	
865					870					875					880	
Cys	Gly	Cys	Arg	Gly	Cys	Arg	Arg	Val	Pro	Ala	Ala	Ala	Gly	Ser	Pro	
				885				890					895			
Phe	Glu	Glu	Leu	Asn	Thr	Arg	Arg	Ala	Gly	His	Pro	Ala	Leu	Ser	Thr	
			900					905					910			
Asp																